

GASTROESOPHAGEAL REFLUX DISEASE

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OVERVIEW

- Chronic relapsing condition
- Significant morbidity
- Estimated lifetime prevalence of 25-35 %
- 44% have heartburn once a month
- 14% have weekly symptoms
- 7 % have daily symptoms

COMPLICATIONS

- Esophagitis
- Strictures
- Ulcerations
- Barrett's esophagus
- Adenocarcinoma

PATHOPHYSIOLOGY

- Transient relaxation of the GE sphincter
- Esophageal motility disorders
- Delayed gastric emptying
- Hiatal hernia
- Acidic gastric contents
- Bile acids

DIAGNOSIS

- History
- Response to a PPI
- Radiologic findings
- Endoscopy
- Ambulatory pH monitoring

HISTORY

- Heartburn, regurgitation
- High specificity, low sensitivity

ATYPICAL SYMPTOMS

- Atypical chest pain
- Hoarseness
- Nausea
- Cough
- Odynophagia
- Asthma
- Globus sensation
- Onset after age 45
- Recurrent laryngitis
- Recurrent sore throat
- Subglottic stenosis
- Dental enamel loss

COMPLICATED GERD

- Dysphagia
- Odynophagia
- Early satiety
- GI bleeding
- Iron deficiency anemia
- Vomiting
- Weight loss

RESPONSE TO PPI

- Omeprazole 40 mg BID X 14 days as specific and sensitive for diagnosis as 24 hour pH monitoring
- Failure to respond warrants further investigation into patients symptoms

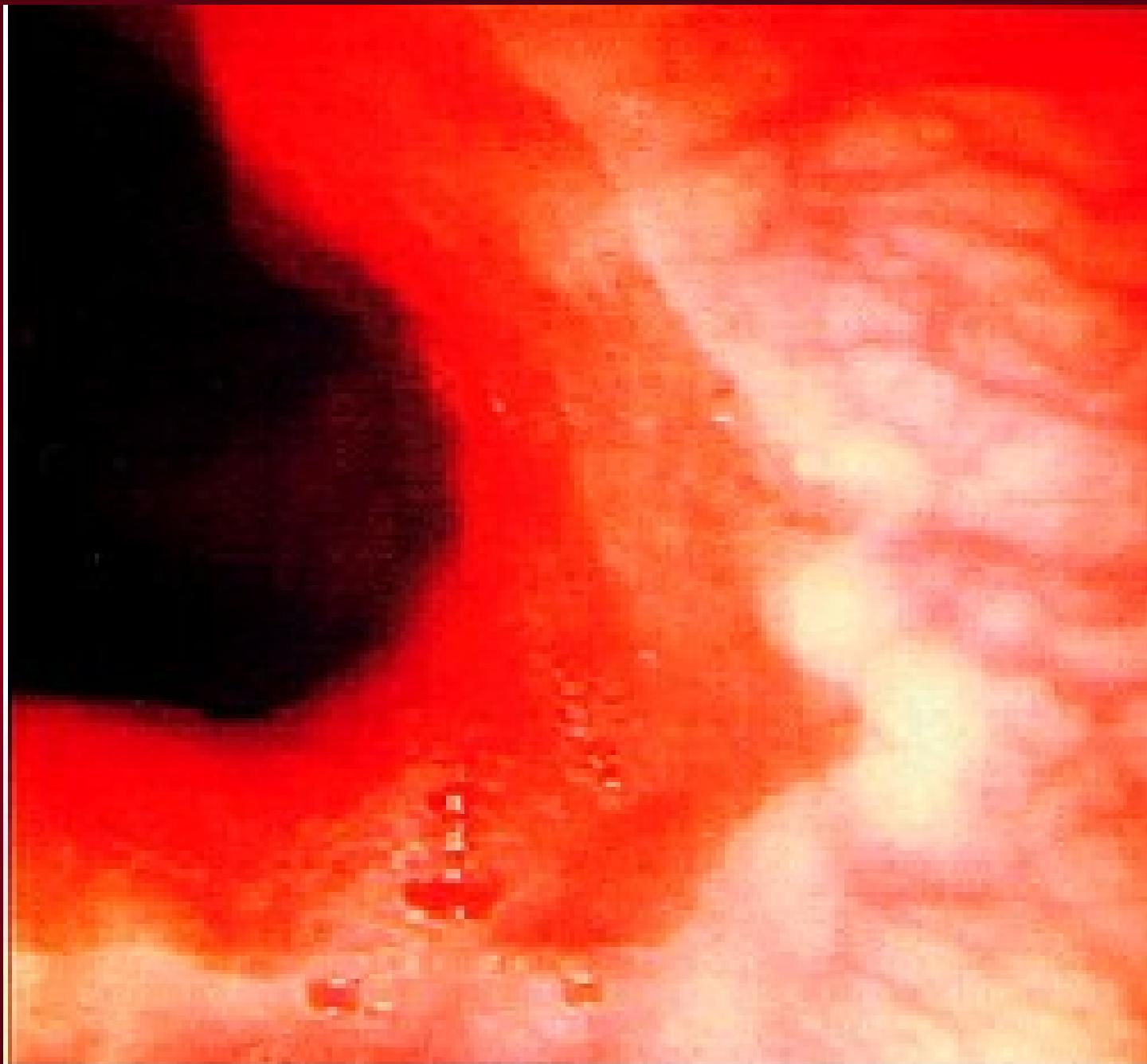
RADIOLOGIC FINDINGS

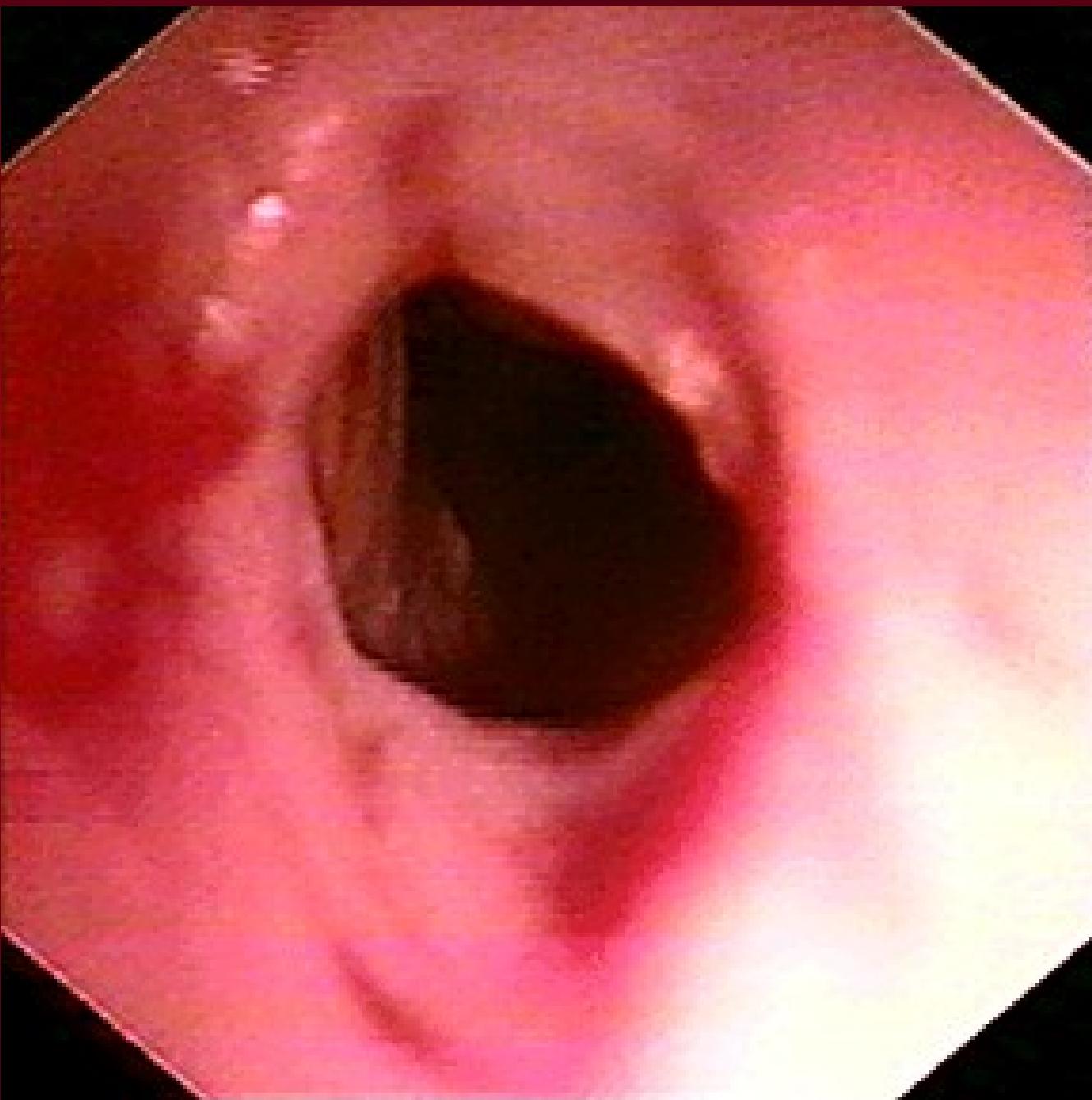
- Only 1/3 of patients have radiologic findings
 - Erosions
 - Ulcerations
 - Strictures
 - Hiatal hernia
 - Thickening of mucosal folds
- Not the test of choice for diagnosis



ENDOSCOPY

- Useful for diagnosing complications of GERD
 - Barrett's
 - Esophagitis
 - Strictures
- Not sensitive for GERD itself
- Only 50% of patients manifest evidence on endoscopy







AMBULATORY pH MONITORING

- Diagnostic gold standard
- pH monitor placed in esophagus above sphincter
- Patient symptom log
- Correlate symptoms with low pH

TREATMENT

- Lifestyle modifications
- Antacids
- Histamine H₂ receptor antagonists
- Prokinetic Agents
- Proton Pump inhibitors
- Anti-reflux surgery
- Newer endoscopic treatments

LIFESTYLE MODIFICATION

- Head of bed elevated six inches
- Decreased fat intake
- Smoking cessation
- Weight loss
- Avoidance of recumbency for 3 hours post-prandially
- Avoidance of large meals and trigger foods
- Avoidance of exacerbating medications

DIETARY FACTORS

- Caffeine
- Spicy foods
- Peppermint
- Citrus fruits
- Fatty foods
- Tomato products
- Chocolate
- Alcohol

ANTACIDS

- OTC antacids are appropriate initial tx
- 1/3 of patients use twice weekly
- More effective than placebo

ADVERSE EFFECTS OF ANTACIDS

- Aluminum: constipation, hypophosphatemia, osteomalacia
- Calcium: constipation, milk-alkali syndrome, rebound hyperacidity
- Magnesium: diarrhea, accumulation in pts. with renal impairment
- Sodium bicarb: milk-alkali in high doses
- Mag-Aluminum: minor changes in bowel function

H2 BLOCKERS

- 70% with reported relief within 2 weeks of initiating treatment
- 43 RCTs found faster healing rates in patients with erosive esophagitis compared with placebo
- Higher dosages and bid dosing increase effectiveness
- PRN dosing for patients able to predict

DRUG	DOSAGE	COST FOR 30 DAY SUPPLY
Tagamet	400 mg bid	\$101
	800 mg bid	\$179
Pepcid	20 mg bid	\$99
	40 mg bid	\$185
Axid	150 mg bid	\$96
Zantac	150 mg bid	\$99
	300 mg bid	\$180

DRUG INTERACTIONS WITH TAGAMET

- Warfarin
- Phenytoin
- Propranolol
- Calcium channel blockers
- Librium
- Valium
- Metronidazole
- Lidocaine
- Theophylline
- Tri-cyclic antidepressants

PROKINETIC AGENTS

- Do not neutralize acid
- Increase both gastric emptying, improve peristalsis and increase lower esophageal sphincter pressure
- Side-effects: abdominal cramping, diarrhea, prolonged QT and fatal arrhythmias

PROTON PUMP INHIBITORS

- Failure of twice daily H2 blockers
- 83% of patients showed improvement with PPI vs 50% with H2 blocker
- For erosive esophagitis, faster healing rates than H2 blocker
- At one year, pts tx'd with daily PPI less likely to relapse
- No significant difference between the PPIs

DRUG	DOSAGE	COST
Nexium	40 mg qd	\$132
Prevacid	30 mg qd	\$131
Prilosec	20 mg qd	\$138
Protonix	40 mg qd	\$104
Aciphex	20 mg qd	\$128

REFRACTORY GERD

- Up to 70% of pts. taking PPIs BID will have periods of gastric pH <4 lasting for more than 60 minutes
- Predominantly at night
- Bioavailability is not altered with food consumption
- Genetic—hepatic cytochrome system CYP2C—more rapid metabolism, and increased acidity
- Zollinger-Ellison syndrome
- ? Role of *Helicobacter pylori*

POTENTIAL LONG-TERM COMPLICATIONS

- Hypergastrinemia, gastric carcinoid tumors in rats
- Atrophic gastritis with use of prilosec > 5 years—potential development of gastric CA
- Increased risk of enteric infections —campylobacter
- Vitamin B malabsorption

ANTIREFLUX SURGERY

- Indications
 - Failed medical management
 - Patient preference for surgery despite successful medical management
 - Complicated GERD
 - Large Hiatal Hernia
 - Atypical symptoms with reflux documented on 24-hour pH monitoring

SURGICAL CANDIDATES

- Reflux esophagitis documented by EGD
- Normal esophageal motility by manometry
- Should have at least a partial response to trial of acid suppression therapy

BASIC TENETS OF SURGERY

- Reduction of hiatal hernia
- Repair of diaphragmatic hiatus
- Strengthening of the GE junction-diaphragm attachment
- Strengthening of antireflux barrier through gastric wrap around GE junction (fundoplication)
- 75-90% effective at alleviating heartburn and regurgitation

POST-SURGICAL COMPLICATIONS

- Solid food dysphagia: 10%
- Gas/bloating: 7-10%
- Diarrhea, nausea and early satiety: < 10%
- Within 3-5 years, 52% of patients taking antireflux meds again

NEW ENDOSCOPIC TREATMENTS

- Stretta procedure: radiofrequency heating of GE junction
- Endoscopic gastroplasty (endocinch)
- Less costly than conventional surgery
- Initial studies show decreased or eliminated use of acid suppressant meds in 50-75% of patients

NEED FOR ENDOSCOPY

- Any patient who requires continuous maintenance medical therapy
- Bleeding, dysphagia, unexplained weight loss or has significant change in symptoms while on effective therapy

BARRETT'S ESOPHAGUS

- Biopsy confirmed intestinal metaplasia of the esophagus
- Chronic esophagitis heals in a metaplastic process—abnormal columnar cells replace squamous cells
- Can progress to dysplasia and ultimately to carcinoma

RISK FACTORS

- Men
- Tobacco use: twofold increase
- Obesity
- Advancing age (plateau reached in 60s)

**INITIAL ENDOSCOPY =
BARRETT'S**

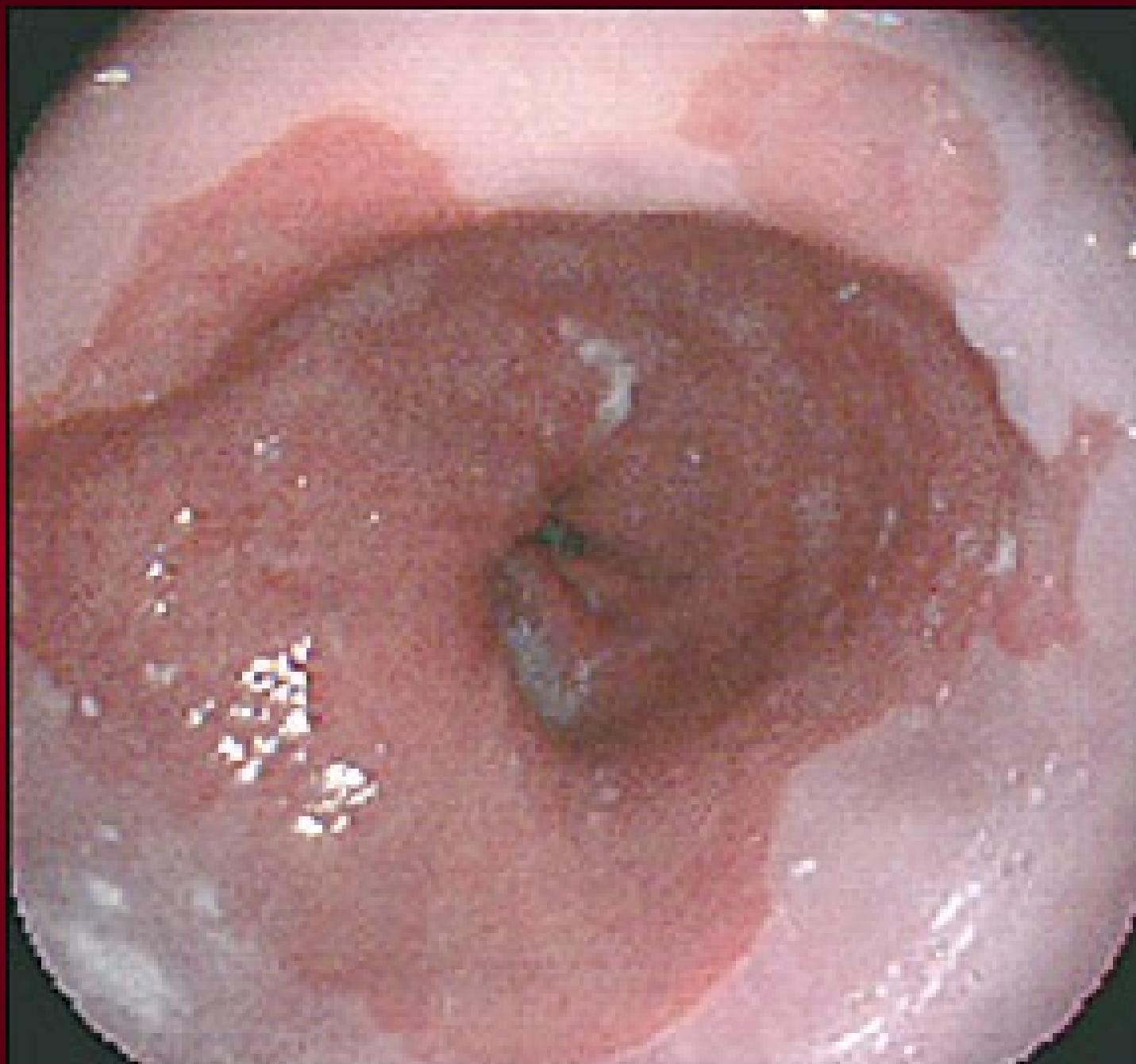


REPEAT ENDOSCOPY IN 1 YEAR

**PATIENTS'S WITH 2
CONSECUTIVE
NEGATIVE SCOPES
SHOWING NO
DYPLASIA= SCOPE
EVERY 3 YEARS**

**LOW GRADE
DYSPLASIA =
ANNUAL
ENDOSCOPY**

**HIGH GRADE DYSPLASIA =
ENDOSCOPY EVERY 3
MONTHS VS.
ESOPHAGECTOMY**



TAKE HOME MESSAGES

- Majority of patients can be diagnosed on basis of history alone
- Life-style modifications play an important role in treatment
- Step-up therapy is both cost-effective and effective treatment
- Be on the look out for complications
- Every patient deserves 1 surveillance endoscopy



C. Cooper

**“It’s your mother. She wants to know
if you were wearing clean underwear.”**